Commodities Exchange: Options for Addressing Price Risk and Price Volatility in Rice

In this paper, Framroze Pochara, a capital markets veteran with over 25 years of experience in the industry, takes off from the differing views of two prominent authorities about rice futures in the Association of Southeast Nations (ASEAN) and tackles various options at the country and regional levels to foster price discovery and price risk management. He presents examples of countries successfully using commodities exchanges and different hedging instruments and posits that there is no reason why these very same instruments cannot be used in the ASEAN region to manage the risks of rice price volatility and help address food security. The message is that there are tools that can work but these need to be tailored to local conditions. Stakeholders, including the public and private sectors and ASEAN, need to lay down the essential infrastructure that can help bring in price stability and better price realization to farmers.

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Commodities Exchange: Options for Addressing Price Risk and Price Volatility in Rice

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## Abbreviations

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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<td>AFSRB</td>
<td>ASEAN Food Security Reserve Board</td>
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<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
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<td>CBOT</td>
<td>Chicago Board of Trade</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>GMS</td>
<td>Greater Mekong Subregion</td>
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<tr>
<td>MSP</td>
<td>Minimum Support Price</td>
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<td>US</td>
<td>United States of America</td>
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Executive Summary

In the aftermath of the 2007–2008 rice price crisis, member states of the Association of Southeast Asian Nations (ASEAN) adopted the ASEAN Integrated Food Security Framework and Strategic Plan of Action on Food Security in the ASEAN Region to address long-term food security in the region. A critical constraint to conducive agricultural trade is price volatility, which has been traced in part to mostly bilateral, opaque transactions now dominating rice trade. One of the avenues being explored is whether rice futures would help bring down price volatility. The feasibility of establishing a rice futures market in the ASEAN region and its potential benefits in reducing price volatility and managing price risks were the subject matter of separate studies by Andrew McKenzie and Milo Hamilton. This paper examines the key positions of both authors and presents various options for rice trading that have the potential to address price risk and price volatility.

McKenzie and Hamilton agreed on the benefits of a rice futures market in making prices more transparent and in serving as hedging instruments. The two authors, however, differed on the timing of and the pacing for the establishment of a rice futures market in the ASEAN region. While McKenzie opined that the region is not prepared yet for a rice futures contract, Hamilton contended that the hurdles in developing a rice futures market in the region are not insurmountable and that the process of establishing this should start now.

There are several examples of countries and governments (Brazil, Ethiopia, India, and Malawi) that use market instruments for price risk management, either over the counter or on commodities exchanges. This paper forwards several suggestions for rice trading in the ASEAN region.

First, rice futures trading within the region is already possible through an existing regional commodities exchange, such as in Hongkong, China or in Singapore. A regional rice index that is representative of the most exported and consumed grades of rice can be feasibly developed and used as a benchmark for ASEAN rice prices. Futures and options based on the index could then be traded on the regional commodities exchange.

Second, countries that are major exporters of popular grades of rice should establish a domestic commodities exchange and trade their most popular local rice grades. These countries could implement a legal and regulatory framework and enlist technical support in setting up the domestic commodities exchange and warehouse receipt system. They could also build warehouse infrastructure and lease this to private players or provide incentives to private players to set up the infrastructure.

Third, governments, private players, and ASEAN can all play a role in the dissemination of rice prices and information on rice production, as well as in the education of market participants.

Finally, ASEAN can play a major catalytic role in developing the commodities exchange as a viable option for addressing price risk and price volatility in rice. It could work toward removing the uncertainties and adverse impact of unilateral trade policy restrictions. Furthermore, it can initiate steps toward rice standardization and the development of a regional rice index. ASEAN can also provide a systematic mechanism for the regional consultation of various stakeholders in the rice value chain through venues such as the ASEAN Rice Trade Forum.
In the medium term, the region can develop an ASEAN investment plan to foster the growth of a regional rice value chain corridor for setting up infrastructures that are essential for the development of a regional commodities exchange and a subregional commodities exchange in the Greater Mekong Subregion, as well as market information and intelligence support, and institutional support for the capacity building of farmers. The investment plan can be a concrete road map toward buttressing the implementation of the Strategic Plan of Action on Food Security in the ASEAN Region.
1. Introduction

In the aftermath of the 2007–2008 rice price crisis, member states of the Association of Southeast Asian Nations (ASEAN) adopted in 2009 the ASEAN Integrated Food Security Framework and the Strategic Plan of Action on Food Security in the ASEAN Region. Preventing extreme rice price volatility and improving the food security situation in the region have been foremost in the agenda of ASEAN leaders, with rice being a staple food of millions of households throughout Southeast Asia. The negative impact of higher and more volatile rice prices on their population and economies is a huge concern for governments in the region.¹

In response to this situation, the ASEAN Food Security Reserve Board (AFSRB) was tasked with convening the ASEAN Rice Trade Forum on a pilot basis. The forum provides a platform to collectively discuss and to promote coordinated policies on rice security in the region. Specifically, the forum seeks to elicit ideas toward helping prevent or mitigate extreme rice price volatility.

A critical constraint to developing conducive trade in food products is extreme price volatility. Among the many factors contributing to price spikes is the lack of transparency of regional rice trade and the limited number of market players. Huge, bilateral, and opaque transactions dominate the region’s rice trade.

One of the avenues being explored is whether regional rice futures trading would help bring down price volatility. Food security objectives—specifically, knowing where the market is moving and mitigating market risks—have triggered interest in the potential development of a rice futures market in the region (Timmer 2010). However, some contend that the role of rice futures on food security is not as direct as measures such as productivity investments that also tackle food supply bottlenecks (McKenzie 2012). Rather, the primary role of rice futures would be in ensuring price discovery and serving as hedging instruments that mitigate the costs of drastic price changes on actors in the food chains.

This paper delves into these issues. Section 1 presents the key positions of two prominent authorities in the field of futures markets as these operate in developed economies. Their views could serve as a springboard for expanding various options that are already available regionally and could pave the way for more transparent pricing mechanisms in rice trade. Section 2 provides examples of country experiences that use different hedging instruments at the domestic level. The message is that there are hedging tools that can work but these need to be tailored to local conditions. Sections 3 and 4 present two categories of commodities exchanges: rice futures in an existing commodities exchange and variants of domestic commodities exchanges.

¹ This working paper was prepared by the author for the pilot implementation of the ASEAN Rice Trade Forum in Siem Reap, Cambodia from 19 to 20 June 2012. The paper, which was presented in the fourth session of the forum, examined other options for addressing price risk and price volatility in rice. The ASEAN Food Security Reserve Board convened the pilot forum in coordination with the ASEAN Secretariat and the Asian Development Bank (ADB). ADB provided technical assistance, with financing from the Japan Fund for Poverty Reduction. The author, Framroze Pochara, is a capital markets veteran with over 25 years of experience in the industry. He is the managing director of Arian Financial Associates and was the former executive director of the Singapore Mercantile Exchange and the chief executive officer of Singapore Mercantile Exchange Clearing Corporation from 2007 to 2011. He also served as the chief executive officer of the Dubai Gold and Commodities Exchange and vice-president for operations of the National Stock Exchange of India. He has a master’s degree in financial management from the University of Mumbai, India.
exchanges. Section 5 discusses the use of swaps, an alternate risk management instrument. Section 6 takes up essential building blocks such as capacity building of farmers and price market information. Section 7 posits the roles of various players, including the public sector and ASEAN. The last section identifies recommendations for encouraging rice trading and addressing price volatility.

2. ASEAN Rice Futures

To shed light on what rice futures can offer, the Asian Development Bank (ADB) commissioned Andrew McKenzie, professor of agricultural economics and agribusiness at the University of Arkansas, to make a study on a rice futures market in the ASEAN region. According to the study (McKenzie 2012), rice markets in Southeast Asia are currently opaque, and a futures contract could help increase market price transparency to aid all market participants in marketing and production decisions. The study stated that despite its limited role in stabilizing prices, a rice futures contract based in the region can have the benefits of price discovery, price risk management, and improvement of the existing market system.

McKenzie further posited that certain policy conditions are necessary to create a successful rice futures market. These include regional cooperation on rice trade policies, minimal government intervention in prices, harmonization of rice quality and grading standards, introduction of warehouse receipts, a more active role for the private sector in domestic and regional rice marketing systems, better access to credit, and developing a cash price index for the ASEAN region. However, he concluded that current cash market characteristics in the region are not conducive to the development of a successful rice futures contract, either at the domestic or regional level. The study suggested the consideration of alternative risk management tools such as swaps as potential hedging instruments.

Another view on rice futures is that of Milo Hamilton. In a position paper (Hamilton 2012), he opined that “now is not too soon” to start the development of a rice futures market. He stated that credible and liquid rice futures can improve the potential of a rice farmer to make a profitable margin. If a farmer cannot make a profit, everyone will suffer, as urbanization, water, and food security issues gain traction. He further argued that rice farming should move from subsistence farming to a business basis. He agreed that rice futures will not solve all problems, but a transparent, risk management, and price discovery tool for rice would contribute to inevitable change in the Asian rice markets in the next decade.

The position paper of Hamilton further suggested

- trading a US dollar-denominated, blended index of rice prices or a rice contract with optional origin delivery at the ports of major exporters or accumulated in warehouses in Singapore;

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2 The prefeasibility study was prepared by Andrew McKenzie for ADB under TA-REG 7495: Support for the Association of Southeast Asian Nations Plus Three Integrated Food Security Framework, which is financed by the Japan Fund for Poverty Reduction. McKenzie’s study as well as the position paper of Milo Hamilton on regional rice futures were also discussed in an expert working group meeting organized by the Centre for Non-Traditional Security Studies at Nanyang Technological University in Singapore in March 2012.

3 Milo Hamilton is a rice market analyst and the president and cofounder of Firstgrain, Inc., a rice market advisory service.
• encouraging major Asian rice players to start up their own domestically driven rough or paddy rice futures;
• educating the stakeholders to dispel prejudice against futures markets; and
• making an Asian commitment to reduce intervention in rice market pricing and to promote transparency of transactions.

McKenzie and Hamilton agreed on the benefits of a rice futures market in making prices more transparent and in providing hedging instruments. Both also agreed that rice futures are not a panacea to the structural barriers to developing more demand-responsive rice supply chains. The two authors, however, differed on the timing of and the pacing for the establishment of a rice futures market. McKenzie thinks that the ASEAN region is not yet prepared for a rice futures market. Instead, he suggested that ASEAN leaders consider alternative risk management tools such as swaps. On the other hand, Hamilton contended that the hurdles in developing a rice futures market in the ASEAN region are not insurmountable, and that this should be started now. He further stated that the rice industry in the United States took over 30 years to develop a workable rice futures contract, and such an effort in Asia may take years.

3. Real-Life Examples of Market Instruments Used for Price Risk Management

There are several examples of countries and governments using market instruments for price risk management either through over the counter or on commodities exchanges to successfully hedge price risk and to bring down price volatility in domestic markets. The following instruments applied in various countries have successfully managed price risk and thereby reduced the burden of uncertainty in terms of the prices of agricultural commodities in their respective domestic markets. In the process, these countries have managed to provide price stability and food security to their population.

(i) **Brazil.** The Brazilian Mercantile and Futures Exchange and its subsidiary, the Brazil Commodities Exchange, have helped farmers hedge their risk with innovative instruments, in coordination with private players, farmer cooperatives, and banks.

(ii) **Ethiopia.** The development of the Ethiopian Commodity Exchange, a spot exchange in the country, along with an entire support system that includes price dissemination and warehousing for grains price stability, have increased the participation of producers in the country.

(iii) **India.** Haryana State Cooperative Supply and Marketing Agricultural Federation (HAFED) is an apex cooperative responsible for wheat procurement under the minimum support price (MSP) scheme of the Government of India. To contend with excess production of wheat, the federation has successfully hedged non-MSP wheat procurement (or the excess of MSP procurement) on the National Commodity and Derivatives Exchange of India as a standard short hedger.

(iv) **Malawi.** Hedging against the lower production of maize in Malawi has been developed through the use of physical call options with the Standard Bank as the counterparty.

There is no reason why these very same instruments cannot be used in the ASEAN region for managing price risk in rice and addressing food security. This paper explores these options for
trading rice and the other infrastructure requirements that can help bring in price stability and better price realization to farmers.

4. Rice Trading on an Existing Regional Commodities Exchange in ASEAN

A rice price index (e.g., a regional rice index) futures contract denominated in US dollars may be developed and traded on an existing commodities exchange such as those in Hong Kong, China or in Singapore. Trading rice futures on an existing commodities exchange in the region, rather than setting up a new commodities exchange to trade only rice futures, has several advantages. Setting up a new commodities exchange is a long-drawn process; is capital-intensive; and requires several critical elements such as rule books, trading system, clearing system, risk management system, and approval of regulators. Also, it does not make sense to establish a new exchange to trade just one product—rice. Instead, the capital investment can be put to better use by incentivizing an existing exchange to launch a rice contract and creating the awareness and education required to attract players to trade this contract.

For rice to be successfully traded on a regional commodities exchange, it is essential that the host of the exchange has or supports an open economy, trading in international currencies, fully convertible local currency, free inflow and outflow of goods, a robust legal and regulatory framework, as well as good warehouse facilities and access to ports. Hong Kong, China and Singapore both meet the above requirements. In addition, both have successful commodities exchanges—the Hong Kong Mercantile Exchange, which trades gold, and the Singapore Exchange, which trades rubber, fuel oil, copper, zinc, and aluminium. The Singapore Exchange also offers over-the-counter clearing for products such as rubber, coal, iron ore, freight, and energy.

Following are the advantages of trading rice on a regional commodities exchange:

(i) The regional rice index can become a benchmark for ASEAN rice prices. Countries, governments, and the private sector as well as farmer cooperatives can use this benchmark in deciding the prices for local rice grades.

(ii) In addition to a rice price index (e.g., a regional rice index), a rice futures contract based on a popular grade of rice, which is in turn based on market feedback, could also be listed on a regional commodities exchange. This could result in the physical delivery of rice as well. Importing countries could then use this platform to trade rice.

(iii) National agencies and parastatals could act as aggregators for their local rice production and hedge the rice price risk on the regional commodities exchange using the regional rice index. If a rice futures contract based on a popular rice grade is also available for trading on a regional commodities exchange, national government agencies, farmer cooperatives, and parastatals could use the platform to trade their rice requirements, rather than doing so bilaterally. This will encourage much needed transparency in price discovery, thereby reducing price volatility.

(iv) The regional commodities exchange could also play the role of central counterparty and guarantee transactions for all kinds of rice trades, including trades done on the exchange and through swaps, over the counter, and forward contracts. The concept of guarantee of trades through a central counterparty is
discussed in Section 5.

However, some prerequisite infrastructure need to be established, including the rice price index and the standardization of rice.

4.1 Development of the Rice Price Index

To trade futures and options on a regional commodities exchange, a rice price index that is representative of the top five or seven most popular rice grades needs to be developed. Many of these rice grades are correlated, but a further study would be needed to assess the extent of correlation of major grades of rice that are exported and consumed in the ASEAN region.

This task of developing an index could be assigned to an agency specializing in constructing such commodity indexes and that has a good knowledge of rice markets. Industry players could be consulted in developing the index, and their inputs could be taken on the grades of rice and their weight in the rice price index. This will give them ownership of the product and encourage them to trade the product when the index is listed for trading. In this regard, venues such as the ASEAN Rice Trade Forum provide a good opportunity for consulting targeted stakeholders about specific recommendations on developing a regional rice index.

The historical prices of the relevant grades of rice could be used to build a base price as on a particular day for the index. The base year for a rice index, for example, could be 2010, which will set the benchmark. The increase or decrease in prices could then be compared with the base price of the index.

4.2 Standardization of Rice

For trading any futures or options product, it is essential that a standard quality be prescribed for the product to be traded. Since the price of rice will differ from one grade to another, it is important that quality and grade specifications for the rice contract are clearly set. For all bilateral contracts, this is not a constraint, as the parties to the transaction negotiate on the grade and quality before entering into the contract. However, for numerous and large contracts, standard grades of the commodity will be needed to facilitate transactions.

Numerous grades and varieties of rice are produced in the ASEAN region. Data pertaining to rice production and prices segregated at the country level and distinguished by grades are available through several agencies, such as the Food and Agriculture Organization of the United Nations (FAO) and the International Rice Research Institute. Despite these varieties of standards and quality, preliminary observation of price correlation of some rice grades indicates strong price correlation among the major grades of rice exported by the top exporting countries such as India, Pakistan, Thailand, the United States, and Viet Nam.

For example, Thai 100% B-grade rice is widely popular and was found to be highly correlated to other local grades of rice as well as international rice prices (Chicago Board of Trade [CBOT] United States [US] long-grain 2.4% rice). Figure 1 shows the correlation between the prices of Thai 100% B-grade rice and US long-grain 2.4% rice.
Similarly, Asian 25% long-grain, low-quality white rice, such as Pakistan 25%, Thai 25%, and Viet Nam 25%, is also correlated (Figure 2). For these rice variety grades, broken rice prices of Pakistan 25%, Thai 25%, and Viet Nam 25% have been considered a proxy in the absence of price data for 25% grade rice.\footnote{Due to the unavailability of data for India 25% grade rice prices, it was not possible to examine its correlation with Thai 25%, Viet Nam 25%, and Pakistan 25% grade rice prices.}
Due to the unavailability of price data for Asian 5% long-grain, high-quality rice, it was not possible to deduce the extent of correlation for the India 5%, Pakistan 5%, and Viet Nam 5% grade rice. However, based on the correlation observed for 25% grade prices, it may be surmised that there would be a similar correlation for the 5% variety as well.

The higher correlation among the various rice grades would mean that prices of different grades of rice move in a coordinated manner. Based on the correlation observed for the foregoing various grades of rice, it may thus be possible to construct a regional rice index for Asian rice grades through a composite of similarly correlated rice grade varieties. This would make the regional rice index a more sensitive measure of price movements of different grades of rice. Based on historical price data, one may thus be able to predict the price of a specific variety of rice based on the movement in the regional rice index.

Another option would be to consider whether the FAO rice index could also be used in its current form or alternatively serve as the basis for creating a regional rice index. The FAO rice index consists of four components—indica high-quality variety, indica low-quality variety, japonica variety, and fragrant variety. The constituent rice grades under each of the four varieties need to be studied further to ascertain whether the FAO rice index can indeed be used as a base for a regional rice index that replicates the Asian grade rice prices.

5. Domestic Commodities Exchange Variants

The top rice-exporting countries in Asia, such as Cambodia, India, Thailand, and Viet Nam, could be encouraged to set up a domestic commodities exchange. Either a spot exchange or a derivatives exchange may be explored, if these countries do not currently have one for trading rice (Box 1).

<table>
<thead>
<tr>
<th>Box 1: Spot or Cash Exchange and Derivatives Exchange</th>
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<tr>
<td>A spot or cash exchange is an exchange where the price for the transaction is agreed for the present moment or for immediate delivery. Transactions done on such an exchange are normally settled 1–2 days after the transaction is agreed upon.</td>
</tr>
<tr>
<td>A derivatives exchange is an exchange where the price for the transaction is agreed for settlement or delivery at some specified date in the future. The date of settlement or delivery is laid out in the contract specifications.</td>
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The most popular local grade of rice can be traded on the local commodities exchange in the country’s respective currency. This will encourage rice farmers to sell or hedge their produce on the local exchange.

There are several success stories of domestic commodities exchanges, such as the Ethiopian Commodity Exchange and the National Commodity and Derivatives Exchange of India. These exchanges help farmers realize better prices. Creating the necessary support infrastructure, such as warehouse receipts and farmer cooperatives, would further facilitate the hedging of the local produce on these exchanges.

Although India and Thailand have existing commodities exchanges, the experience of market participants has not been very positive in both countries. While India has multiple commodities
exchanges (both spot and derivatives exchanges) and warehouse infrastructure including the receipt system, the government has banned rice trading on India’s exchanges. In addition, the minimum support price for procurement of rice by the government also discourages market participants from trading on the exchange.

With respect to Thailand, the existing exchange is a futures exchange, where the rice contract is traded in baht. There are several reasons why the contract has not gained popularity. First, the rice-pledging scheme of the Government of Thailand prescribes a minimum procurement price of rice. These procurement prices are much higher than the international rice prices. Since the farmers are getting a much higher price through the government procurement program, they have no reason to trade on the exchange. Second, a warehouse receipt system is not available, which is a key element of the logistics system for a successful commodities exchange. Delivery of rice traded on the exchange is done on a free-on-board basis or in warehouses.

It may be useful for Thailand to consider having a rice contract denominated in US dollars. This will not expose the importers to currency risk and thereby increase participation in the rice futures contract. As the farmers may not be conversant with futures and options instruments, it would also help if the exchange offers spot trading in rice.

As Cambodia and Viet Nam are among the net exporting countries in ASEAN, a domestic commodities exchange may be established in these countries as well. As discussed earlier, the establishment of the Ethiopian Commodity Exchange as well as warehouse infrastructure and credit facilities have greatly helped local farmers obtain better prices for their maize.

Another option would be to consider setting up a subregional commodities exchange in the Greater Mekong Subregion (GMS). The GMS has the potential for enhanced rice export through the development of the intercountry rice value chain network. The GMS is currently improving the trade facilitation services and infrastructure of the network. Investments on logistics infrastructure at the shared economic and trade corridors could be augmented. Information communication technology-based market information and capacity building for farmers in using the exchange platforms could also be integral aspects for developing the subregion’s rice value chain network.

The advantages of trading rice on a domestic commodities exchange are as follows:

(i) If the domestic commodities exchange offers trading on a spot or cash basis, farmers can sell their produce directly on the local exchange rather than go through a middle person to find a buyer for their rice. This will enable them to obtain a better price for their produce.

(ii) Trading rice on the domestic commodities exchange will lead to better price discovery.

(iii) If the domestic commodities exchange offers rice futures, farmers could use the platform for hedging their rice produce and lock in a minimum price for delivery at a future date.

(iv) The domestic commodities exchange could set up warehouse facilities and a warehouse receipt system, which provide flexibility for farmers to sell their rice when they can get better prices. The warehouse receipt would also help farmers obtain credit against their produce from banks and other institutions since the receipts are tradable.

(v) If the farmers were not to use the local commodities exchange and sell rice to a buyer, they may encounter an issue where the buyer may fail to take delivery or not pay the price agreed upon. However, if the sale is done on the exchange, the
latter would guarantee the transaction and pay the price at which the sale was performed on the exchange platform.

The domestic commodities exchange, therefore, not only provides a platform for trading and price discovery but also provides the complete logistics system that is required by farmers to market their crop. The logistics system includes warehouse facilities, warehouse receipts, assaying of quality of rice, price dissemination, and the infrastructure to obtain credit for their produce, as well as educational support for farmers and a guarantee for transactions executed. Hence, even if farmers decide not to use the domestic commodities exchange for selling or hedging their produce, they could still benefit from the logistics system put in place by the exchange.

6. Swap Instruments and Forward Contracts

6.1 Swap Transaction

Another option for a farmer is through a swap contract. This is a bilateral agreement between two parties to fix a price for a commodity over some future time period. A floating price is thus exchanged (i.e., swapped) for a fixed price between the buyer and the seller of a commodity. Swaps are benchmarked against a futures price. A farmer could enter into a swap transaction to obtain a fixed price for his or her produce. An example of how a swap is undertaken is as follows:

A rice farmer (i.e., swap seller) would like to receive a fixed price of $200 per ton for the production he is expecting 60 days in the future. The floating price is based on the closing price of the CBOT futures market. The farmer enters into the swap to receive a fixed price of $200 per ton. On the settlement day, the price of CBOT rice futures for the expiring contract month is $190 per ton. The swap buyer pays the farmer the difference between the fixed price (i.e., $200) and the CBOT futures price (i.e., $190), which is $10 per ton. The farmer sells the produce in the cash market for $190 (as the futures prices of the commodities traded on the exchange normally converge with cash market prices) and has thus fixed his production value at $200 per ton.

Several concerns, however, need to be addressed with respect to swap transactions:

(i) **Risk of counterparty default.** If the swap buyer fails to make payment as per the fixed price agreed, the swap seller (i.e., farmer) can lose money if the price in the futures market is lower than the fixed price. To shield the farmer from the risk of counterparty default, a central counterparty would be required to provide a guarantee mechanism for the swap transaction. It may be difficult to find such an entity (e.g., a bank or financial institution) to guarantee the swap transaction. The only other option is for the regional commodities exchange or domestic commodities exchange to act as a central counterparty and provide the guarantee mechanism to both the buyer and the seller of the swap.

(ii) **Futures price required for swap transaction.** Since swap transactions are benchmarked against a futures price, it is essential to have an existing rice futures contract price against which the swap transaction may be settled. However, in the absence of a successful rice futures contract traded in the ASEAN region, it may not be possible to use swaps.
For these reasons, the swap transaction may thus not work.

6.2 Forward Contracts

A forward contract is a bilateral agreement between the seller and the buyer to fix a price for a specified grade and the quantity of a commodity for delivery at an agreed date in the future. Though the risk of counterparty default is not eliminated by the use of forward contracts, unless a guarantee mechanism is in place, these contracts do not require a futures price for settlement.

Such forward contracts could be beneficial to a rice-importing country to obtain a guaranteed supply of rice from a rice-exporting country. Both the rice-importing and rice-exporting countries could enter into a forward contract agreement, whereby the rice-exporting country agrees to deliver an agreed quantity of a specific grade of rice, at a fixed price, to a rice-importing country, and on the date of delivery specified in the forward contract. Under the forward contract agreement, both countries are bound by the terms of the forward contract. If one of the parties to the forward contract fails to meet its commitment, the defaulting party would need to make good the loss (i.e., the difference between the prevailing market price of rice and the fixed price as per the forward contract) to the other party.

International commercial banks could administer this arrangement. Hence, if a forward contract arrangement backed by a guarantee mechanism to the non-defaulting party is in place, there would be very little motivation for either the rice-importing or rice-exporting country to renege on the agreement.

7. Other Building Blocks for Successful Rice Trading

7.1 Warehouse Receipt System and Finance

A critical element for trading rice on a commodities exchange is a robust warehouse receipt system, where the integrity of the system is not compromised by the quality and quantity of rice stored in the warehouse. A warehouse receipt system allows participants to deposit a stated quantity of a specified quality of a commodity into a warehouse. A receipt is issued to the owner as evidence of location, ownership, quality, and quantity of the grains stored. The receipt is a negotiable instrument that can be sold or used as collateral for a loan, backed by the claim to the commodity held in the warehouse.

Warehouse receipts facilitate risk management in three main ways. First, they give participants better access to formal credit markets by providing reliable, verifiable collateral for loans to mitigate the consequences of shocks such as natural calamities. Second, a warehouse receipt system facilitates private storage, giving farmers the flexibility to market their crop at different times of the year, rather than strictly at harvest when prices are usually the lowest. This diversification of sales across time helps manage risk and, when widely adopted, can also help reduce seasonal price variability. Third, a well-structured and reliable warehouse receipt system generally makes food marketing more efficient by acting as a clearinghouse that enforces ownership claims and can be an impartial third party that guarantees performance on contracts.

As the warehouse receipt is a tradable document backed by the legal and regulatory system of the respective country, the commodities exchange can rely on the warehouse receipt to effect delivery of rice as per the quality, quantity, and ownership specified on the receipt. The
warehouse receipt is normally accompanied by a certificate from the assayer certifying the quality of the grain.

An example of the successful implementation of a warehouse system in a developing country is in Ethiopia. The Ethiopian Commodity Exchange has established 55 regional warehouses in 17 regions of the country for storing traded commodities such as coffee, sesame, pea beans, and maize. In a short period of 3 years, the warehouses have handled 250,000 tons of produce and effected 4.7 million bags of deliveries on the exchange.

7.2 Capacity Building of Market Participants

Another essential element of successful rice trading in a commodities exchange is the ability of the exchange and other institutions to impart education to market players. Educational and training programs or campaigns could cover topics such as how to trade on an exchange; how to trade futures, options, and swaps; how to use these instruments to get a minimum (i.e., floor) price; how to use price trends for future pricing; how to access credit; what are the benefits of hedging; and what is counterparty risk.

Typically, commodities exchanges or government agencies could conduct such programs for a wide variety of market participants, including producers, end-users, and even financial investors. One such program run by a commodities exchange is in the People’s Republic of China (Box 2).

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<tr>
<th>Box 2: 1,000 Villages, 10,000 Farmers’ Education Program</th>
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<td>The Dalian Commodity Exchange, based in Dalian, People’s Republic of China, initiated a systematic program of training for farmers called “1,000 Villages, 10,000 Farmers. In cooperation with the concerned departments and agencies of the local government, a series of circuit training seminars were conducted. During 2005–2006, over 300 training seminars were held. These trained more than 30,000 people, covering 44 cities and county districts across 3 provinces and 1 district in the northeast region. Trainees included major growers, village agents, grassroots village cadres, and cash market enterprises.</td>
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<td>The program covered topics on how to use cash and futures market information, information on soybean and corn markets, and how to hedge the physical produce of farmers using the futures market.</td>
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7.3 Price Dissemination

A third element that is equally critical for commodities exchanges and for managing price risk is real time (or near real time) price dissemination to farmers. Exchanges, government agencies, and the private sector can play a major role in disseminating prices and other rice production data widely and making these easily available to market participants through various channels such as the television, radio, internet, exchange websites, short message service, and electronic ticker boards that display prices at strategic locations. Transparent and easily available data will attract more participants to trade on the exchange and to also use the prices discovered on the exchange as a price benchmark. The price trends emanating from the exchange would provide effective signalling for production, purchasing, and investment decisions.
In addition to price information, all relevant data pertaining to rice production in the region and globally, as well as stocks held in the country and price signal trends, may also be made available to the farmers on a regular basis.

The commodities exchanges in Dalian as well as in Ethiopia demonstrate the use of information and communications technology to make prices and market information widely available to stakeholders. Up-to-date information has helped the growth of trading volumes in Ethiopia and supported farmers in the People’s Republic of China to decide what crops to plant (Box 3).

**Box 3: Exchanges and Price Information Dissemination**

The Ethiopian Commodity Exchange achieved an information explosion using electronic tickers, a website, messages on registered mobile phones, and toll-free call numbers for providing price information to farmers, traders, and other users. It has over 80 electronic tickers spread across Ethiopia, covering all the trade centers for price dissemination. It receives over 1 million calls per month for price information.

With such transparent and efficient information system in place, the trading volumes on the exchange have registered phenomenal growth, from 138,000 tons in 2008–2009 to 508,000 tons in 2010–2011.

The Dalian Commodity Exchange disseminates cash as well as futures market information free of charge to producers, village organizations, and enterprises that are active in commodity supply chains in the main producing regions in the People’s Republic of China. The exchange also receives and distributes market information on soybean and corn from a number of government and private information service agencies, including the National Grain and Oils Information Centre and the Price Monitoring Centre of the National Development and Reform Commission. A range of outlets are used: television, radio, newspapers, websites, and the exchange’s own publication, *Information Weekly*.

The Dalian Commodity Exchange collaborates with two information partners, China Soybean Net and China Corn Net, to provide telephone consultations free of charge to farmers, 24 hours a day. Analysts at these two organizations meet every morning to assess the market situation and reach consensus on important information that market participants might require during the day. In May 2007, over 100,000 free telephone consultations were provided to farmers. Short message service (SMS) is another important channel. During 2006, 410,000 SMS messages were sent containing market information updates.

During the spring planting season in 2006, local farmers in the city of Hailun in Heilongjiang Province were faced with declining soybean prices, and were uncertain about which crop to plant. Using the exchange’s price information, the farmers came to understand that planting corn instead of soybean would increase returns.

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8. **Role of Stakeholders in Rice Trading**

8.1 **Governments**

The governments of the ASEAN member countries play a vital role in providing the building blocks for rice trading. Even if a government does not wish to build the physical infrastructure, it can create the policy framework and investment environment to get the private sector involved in building the support system. These building blocks include (i) infrastructure development, (ii)
dissemination of data that affect pricing of rice, (iii) capacity building of market participants, and (iv) supportive government policies.

**Infrastructure development.** Governments in the top rice-exporting and top rice-producing countries can provide incentives to the private sector (e.g., public–private partnership schemes) to build warehouses at strategic places within the country with proximity to ports or farmlands. In addition, the government could provide the necessary legal framework for the introduction and use of a warehouse receipt system. The storage of goods in a warehouse backed by a warehouse receipt system will greatly benefit farmers and end-users. In addition, the entities setting up and managing such warehouses can further expand their activities by providing assaying (i.e., quality certification) services for the goods stored in the warehouses and transport and logistical support for bringing goods from the farm to the warehouses or to the ports for export.

**Dissemination of data that affect rice pricing.** Governments can play a role in the collation, publication, and dissemination of rice prices and production information to market participants, which could manage price risk and mitigate price volatility. As seen from the experience in the People’s Republic China, the dissemination of prices and production data in local and world markets enabled farmers to realize maximum yield for their crops. Similarly, subcontract arrangements or public–private partnership variants can be employed for the engagement of private or research institutions to provide market information.

The United States Department of Agriculture plays a vital role in the collection, publication, and distribution of data for rice and other agricultural products. A similar national agency in each of the rice producing countries or a central regional agency, including the AFSRB, could play a role similar to the department. Such an agency could also set up a helpline to provide guidance to farmers on which crop to plant, grade of rice to be planted to obtain higher yields, and any other support needed by farmers for rice production (e.g., new techniques, pest resistant grades, or fertilizers to be used).

**Capacity building of market participants.** As mentioned in Section 6.2, capacity building through the education of market participants is an essential building block for successful rice trading in commodities exchanges. Again, the government and its agencies, private entities, or public–private partnerships could be engaged in this process of capacity building.

**Supportive government policies.** Government policies such as freezing exports to stabilize local prices, providing incentives to exports (at the time of surplus production), levying high taxes on exports (at the time of deficit production), and granting incentives on imports (at the time of deficit production) cause price volatility as well as difficulties for traders in defining viable business plans for the export and import of agricultural commodities. Also, it is not uncommon for governments to ban futures and options trading on commodities when prices start rising. Additionally, price support and interference in market distribution at the local level have dampening effects on rice trading. Such government actions result in higher price volatility in addition to the volatility arising on account of demand–supply and other production related factors.

A study on the short-term and long-term effects of such localized action could be conducted by an ASEAN agency such as the AFSRB and shared with the governments in the region, so that informed and appropriate policy decisions are considered.
8.2 Private Sector

In developing countries, the participation of private players in the agricultural trade value chain is low. Yet similar to the government and its agencies, the private sector can play a crucial role in developing the infrastructure for rice trading. For example, investments for creating infrastructure, such as warehouses, are capital-intensive. Also, restrictive and inconsistent government policies discourage the private sector from making the huge investments required in such projects. Governments could provide loans to private sector entities at concessional rates; with longer payback periods, tax holidays, or tax concessions; and sell land for setting up warehouses at a concessional rate.

Private participants can play the following roles in the agriculture products value chain:

(i) Private players can play the role of aggregators and hedge the price risk on a commodities exchange on behalf of the farmers, while at the same time providing a minimum price guarantee to them (Box 4).

(ii) Private players can be encouraged to set up warehouse infrastructure, which is a major shortcoming in Asian countries. They could also provide value-added services such as assaying.

(iii) Since the produce is stored in the warehouse run by them, private players can also provide credit or finance options to farmers either on their own (and earn a decent risk-free return) or in conjunction with banks and finance institutions.

(iv) They can set up transport and logistics businesses to move the rice from the farm to the warehouse, ports, or other locations.

(v) Private players can play a major role in the capacity building of market participants. They can educate the farmers on what instruments to use and under which circumstances. These instruments include insurance products, financing products, derivatives products, and over-the-counter instruments.

(vi) Private players can also be involved in producing research reports on crops in terms of price trends and demand and supply during the harvest and postharvest periods. This information could then be disseminated to farmers directly or through government agencies at a price.

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<th>Box 4: Role of Aggregators</th>
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| In Asia, the area of the farmlands cultivated by most farmers is very small. Also, small farmers do not have the expertise to trade or hedge their rice produce on local, regional, or global exchanges. Even if they were to trade on the established exchanges, the contract sizes in these exchanges are too large for these farmers to hedge their produce. Further, futures trading necessitate payment of mark-to-market margins (i.e., losses) on a daily basis, which would also be cumbersome for small farmers.  
Hence, there is a need for aggregators who will consolidate the produce on behalf of small farmers and hedge on commodities exchanges. Through hedging, farmers can obtain a minimum price for their produce, and in case of an upside, the profits can be distributed among the farmers.  
The system of aggregators or elevators is prevalent in Brazil, the United States, and many other countries. Private entities, farmers, agriculture cooperatives, or a government agency could play the role of aggregators. |
8.3 ASEAN

ASEAN can play a broader role in policy formation and strategic guidance to the governments in the region. The policy and strategic inputs could be related to policy measures that are conducive to infrastructure investments, such as setting up commodities exchanges and warehouse infrastructure within a country, and establishing regional and domestic commodities exchange platforms for country-specific rice requirements (imports or exports). ASEAN can also play a major role in the collation, publication, and distribution of rice data to governments and directly to farmers.

In addition, ASEAN can provide guidance and resources to countries lacking the technical know-how for setting up the necessary infrastructure and the legal framework (for changes in laws) to implement such policies. An important area for consideration by ASEAN member countries is an enabling law that would support the transfer of ownership of rice through warehouse receipts.

Under the ASEAN banner, a common domestic commodities exchange could be established for trading rice from Cambodia, Thailand, and Viet Nam. However, government policies in terms of import and export of rice across borders, and the currency in which the rice contract may be traded, would need to be examined.

ASEAN or an agency in ASEAN may also try out a forward contract arrangement that can encourage rice-importing countries to reduce self-sufficiency in return for a commitment from rice-exporting countries that they will not unilaterally ban the export of rice. The countries, importer and exporter, could enter into a forward contract clearly specifying the quality and quantity of rice, date of delivery, and the price at which the rice will be exported. This forward contract would be binding on both countries.

Such forward contracts could be administered or overseen by international commercial banks that could serve as the central counterparty. In case one of the countries fails to honor its obligation, this party could step in to ensure that the country which did not meet its commitments as per the forward contract, makes good the loss (difference between price of rice in the international market less the price agreed in the forward contract) to the nondefaulting country.

If the country that imposes bans is required to make good the loss for not fulfilling its commitments, governments will desist from taking such unilateral decisions as imposing bans or restrictions. At the minimum, exports or imports under such forward contracts will not come under the purview of the export or import ban.

9. Recommendations and Action Points

First, rice futures trading within the ASEAN region is already possible through an existing regional commodities exchange. To facilitate its development, the following measures would need to be undertaken:

(i) An existing international commodities exchange in the ASEAN region should be identified as the regional commodities exchange for trading rice price index futures and options. A feasibility study would be needed to ascertain the steps in its development. ASEAN can help by facilitating the collection and dissemination
of information essential to the feasibility study, and setting up consultations with various stakeholders on their needs that could be met by rice futures.

(ii) A regional rice index, which is representative of the most exported and consumed grades of rice, should be developed. Futures and options based on the index could then be traded on the regional commodities exchange.

(iii) A further study should be conducted to ascertain price correlations among various grades of rice traded in the region.

(iv) National agencies and parastatals should be encouraged to trade on this international commodities exchange. The parastatals should act as aggregators for their local rice production and hedge the rice price risk on this exchange using the regional rice index, but this needs to be time-bound with clear guidelines and ground rules.

Second, countries that are major exporters of popular grades of rice should establish a domestic commodities exchange and trade their local rice grades. Several measures could be taken in this regard:

(i) Governments could provide the incentives to private players to set up warehouse infrastructure such as through public–private partnerships. Private entities and farmer cooperatives should be encouraged to act as aggregators and to educate the farmers on the instruments for hedging their price risk and for obtaining credit facilities for their produce.

(ii) A regulatory framework for the establishment of a warehouse receipt system should be piloted in the major rice-producing countries. This will help farmers decide on the time to sell their produce and also facilitate financing by banks and other institutions.

(iii) The GMS has the potential for enhanced rice export through the development of an intercountry rice value chain network. The GMS is currently improving its trade facilitation services and infrastructure in this network, but investments on logistics infrastructure at the shared economic and trade corridors should be augmented. Thailand and Viet Nam, for example, together with their respective milling and transport sectors, could improve their domestic commodities exchanges with the establishment of warehouse facilities (backed by warehouse receipts systems) in strategic locations along the corridors. Cambodia, the Lao People’s Democratic Republic, and Myanmar could initiate exchange platforms that offer spot trading in rice. Information communication technology-based market information and capacity building for farmers in using the exchange platforms could also be integral aspects for developing the subregion’s rice value chain network.

Third, ASEAN can play a major catalytic role in developing the commodities exchange as a viable option for addressing price risk and price volatility in rice in the following ways:

(i) As a first step, it would be useful to work toward removing the uncertainties and adverse impact of unilateral trade policy restrictions. In this regard, ASEAN should be encouraged to spearhead talks with India, Pakistan, and other major Asian rice-exporting countries to discuss coordinated and coherent policies as well as the disadvantages of introducing unilateral export bans and other import-restricting measures. A possible way forward is the establishment of a rice market infrastructure development plan, which includes regional and domestic commodities exchanges, warehouse systems, and information systems.
(ii) ASEAN may also take the necessary steps toward rice standardization and the development of a regional rice index.

(iii) The dissemination of rice prices and production data of local and global markets to farmers and other market participants should be done through the ASEAN Food Security Information System, in coordination with specialized regional rice data centers such as FAO and the International Rice Research Institute.

(iv) ASEAN should provide a systematic mechanism for the regional consultation of various stakeholders in the rice value chain. Regularizing the ASEAN Rice Trade Forum as a platform for vetting issues and ideas is a positive step toward developing the regional rice value chain network.

(v) In the medium term, the region should develop an ASEAN investment plan to foster the growth of a regional rice value chain corridor. The investment plan may include scaling up infrastructure that is essential for the development of a regional commodities exchange, the establishment of a subregional commodities exchange in the GMS, market information and intelligence support, as well as institutional support for the capacity building of farmers. The plan could also include investments for enhancing rice production and productivity in the region. The investment plan can be a concrete road map toward buttressing the implementation of the Strategic Plan of Action on Food Security in the ASEAN Region.
References


In this paper, Framroze Pochara, a capital markets veteran with over 25 years of experience in the industry, takes off from the differing views of two prominent authorities about rice futures in the Association of Southeast Nations (ASEAN) and tackles various options at the country and regional levels to foster price discovery and price risk management. He presents examples of countries successfully using commodities exchanges and different hedging instruments and posits that there is no reason why these very same instruments cannot be used in the ASEAN region to manage the risks of rice price volatility and help address food security. The message is that there are tools that can work but these need to be tailored to local conditions. Stakeholders, including the public and private sectors and ASEAN, need to lay down the essential infrastructure that can help bring in price stability and better price realization to farmers.

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